

CLAIM(S)

I/we claim

[0057] 1. An applicator apparatus for applying a protective cover to a product comprising:

[0058] (a) a platform supporting the product in a predetermined orientation;

5 [0059] (b) a cover magazine holding a plurality of protective covers;

[0060] (c) a frame supporting a cover manipulator, the cover manipulator including a cover gripper operable to grasp a cover and extract said cover from the magazine and to position said cover for application to said product;

10 [0061] (d) a transport mechanism coupled to said frame and operable to move said cover manipulator from a first position adjacent said cover magazine to a second position adjacent said platform;

[0062] (e) a cover applicator for pressing said cover against said product in a predetermined orientation; and

[0063] (f) a cover fastener for securing said cover to said product.

15 [0064] 2. The applicator of claim 1 wherein said platform includes a turntable mechanism for rotating said product to permit said protective covers to be applied to at least two sides thereof.

20 [0065] 3. The applicator of claim 1 wherein said cover manipulator comprises a structure rotatable about a pivot axis and said cover gripper comprises a plurality of suction cups mounted on said structure.

[0066] 4. The applicator of claim 3 wherein said structure is supported on a vertically movable positioner mechanism.

25 [0067] 5. The applicator of claim 4 wherein said vertically movable positioner mechanism is rotatable about a vertical axis.

[0068] 6. The applicator of claim 2 wherein said turntable is vertically moveable.

30 [0069] 7. The applicator of claim 6 further including a sensor system for sensing the height of said product and for adjusting the height of said turntable.

[0070] 8. The applicator apparatus of claim 1 wherein said protective cover is configured to cover an end of said product, a portion of each side adjacent said end and a portion of a top adjacent said end.

5 [0071] 9. The applicator apparatus of claim 8 wherein said cover fastener includes a pressure applicator operable to fold said protective cover along relieved portions formed therein over said sides and said top of said product and to apply fasteners thereto.

10 [0072] 10. The applicator apparatus of claim 9 wherein said pressure applicator comprises a set of pressure rollers.

[0073] 11. The applicator apparatus of claim 10 wherein said pressure applicator comprises a moveable cage.

15 [0074] 12. An applicator apparatus for applying a protective cover to a product comprising:

[0075] (a) a platform supporting the product in a predetermined orientation and at a predetermined height;

[0076] (b) a cover magazine holding a plurality of protective covers;

[0077] (c) a frame supporting a cover manipulator, the cover manipulator including a moveable structure operable to grasp a cover and extract said cover from the magazine and to place said cover into an orientation for application to said product;

[0078] (d) a transport mechanism coupled to said frame and operable to move said cover manipulator from a first position adjacent said cover magazine to a second position adjacent said platform;

25 [0079] (e) an applicator and fastener assembly for pressing said cover against said product in a predetermined orientation and for securing said cover to said product.

30 [0080] 13. The applicator apparatus of claim 12 wherein said moveable structure comprises at least one articulated member rotatable about a pivot axis and supported on a vertically moveable positioner.

[0081] 14. The applicator apparatus of claim 13 wherein said articulated member comprises at

least one arm member supporting a plurality of suction members for gripping a protective cover.

[0082] 15. The applicator apparatus of claim 13 wherein said articulated member comprises a plate member supporting a plurality of suction members for gripping a protective cover.

[0083] 16. The applicator of claim 12 wherein said platform includes a turntable mechanism for rotating said product to permit said protective covers to be applied to at least two sides thereof.

[0084] 17. The applicator of claim 16 wherein said turntable is vertically moveable.

[0085] 18. The applicator of claim 17 further including a sensor system for sensing the height of said product and for adjusting the height of said turntable.

[0086] 19. The applicator apparatus of claim 12 wherein said protective cover is configured to cover an end of said product, a portion of each side adjacent said end and a portion of a top adjacent said end.

[0087] 20. The applicator apparatus of claim 19 wherein said cover fastener includes a pressure applicator operable to fold said protective cover along relieved portions formed therein over said sides and said top of said product and to apply fasteners thereto.

[0088] 21. The applicator apparatus of claim 9 wherein said pressure applicator comprises a set of pressure rollers.

[0089] 22. The applicator apparatus of claim 10 wherein said pressure applicator comprises a moveable cage aligned with said end of said product and operable to press side and top portions of said protective cover around said product.

[0090] 23. The applicator apparatus of any of claims 1-22 wherein said protective cover comprises a planar sheet of material having relieved side and top portions so as to permit said portions to be folded over the top and sides of said product.

[0091] 24. A method for protecting end portions of a product comprising the steps of:

- [0092] (a) forming a sheet of protective material configured and dimensioned to cover ends and portions of a top and sides of said product;
- [0093] (b) gripping said sheet and placing it against said end portion of said product;
- [0094] (c) folding said sheet along relieved portions formed therein over said portions of said top and sides of said product;
- [0095] (d) fastening said sheet to said product.

[0096] 25. The method of claim 24 wherein steps (b), (c) and (d) are performed by an apparatus comprising:

- [0097] (a) a platform supporting the product in a predetermined orientation and at a predetermined height;
- [0098] (b) a magazine holding a plurality of said sheets;
- [0099] (c) a frame supporting a manipulator, the manipulator including a moveable structure operable to grasp a sheet and extract said sheet from the magazine and to place said sheet into an orientation for application to said product;
- [0100] (d) a transport mechanism coupled to said frame and operable to move said manipulator from a first position adjacent said magazine to a second position adjacent said platform; and
- [0101] (e) a folder and fastener assembly.